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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/901,398	07/09/2001	Robert E. Buxbaum	REB-12402/01	6461

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EXAMINER

MCHENRY, KEVIN L

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 10/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AC

<b>Office Action Summary</b>	<b>Application No.</b> 09/901,398	<b>Applicant(s)</b> BUXBAUM, ROBERT E.	
	<b>Examiner</b> Kevin L. McHenry	<b>Art Unit</b> 1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 16, 17, 19 and 33-37 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-7, 18, 20, 21 and 23-32 is/are allowed.
- 6) ☒ Claim(s) 8-15 and 22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10/4/01</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

### ***Election/Restrictions***

1. The examiner acknowledges the applicant's election of species, particularly the species of Figures 1 and 2. The applicant noted, without traverse, that this species should cover claims 1-37. In other words, the applicant noted that this species should cover all cited claims.

The examiner disagrees with applicant's citation of claims for the elected species because the species of Figures 1 and 2 covers different subject matter than the species of Figure 3. The species of Figure 3 regards a reactor that has a helical feed tube, combustion catalysts on the exterior of the reactor, and an insulating jacket. These features are not included in the species of Figures 1 and 2.

The examiner groups the species and claims in this way:

The species of Figures 1 and 2: claims 1-15, 18, and 20-32

The species of Figure 3: claims 16, 17, 19, and 33-37

The examiner notes that there is no generic claim, as noted in the original request for an election of species.

Because the applicant has elected the species of Figures 1 and 2, claims 1-15, 18, and 20-32 will be examined while claims 16, 17, 19, and 33-37 are withdrawn.

### ***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 32.

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Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 8-15 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a monolith with passages that are coated with a reaction catalyst and with a membrane material (see specification on page 7, lines 1-3, 14-22), does not reasonably provide enablement for a monolith that has a reaction catalyst coating and a membrane with a space in between. Because claim 8 depends upon claim 6, which depends upon claim 3, claim 8 includes the limitation of a space between the reaction catalyst coating and the membrane. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly

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connected, to make the invention commensurate in scope with these claims. One of ordinary skill in the art would be unsure of how to space apart a reaction catalyst coating and a membrane on a monolith while maintaining the function of the monolith. Would one material go on the exterior of the monolith body while the other is within the channels? Would this allow proper flow, reaction, and separation of gases in a reactor? Could the materials be spaced apart within the monolith channels?

Also, it does not appear that the specification enables a monolith that has a membrane and a reaction catalyst coating that can be arranged so that the reaction catalyst coating is in contact with the interior side of a reactor wall when the reactor has a volume, a wall with an exterior side and an interior side, and a communicating portal therebetween for mixed gas flow. In particular, claim 12 cites that the channels of the monolith are coated with the reaction catalyst; it is unclear how this reaction catalyst would then be in contact with the interior side of the reactor wall.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 15 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 15 recites the limitation "the heating means" in lines 1-2 of claim 15. There is insufficient antecedent basis for this limitation in the claim. For examination purposes the examiner interpreted this language to mean "a heating means".

8. Claim 22 cites that a sweep gas is steam. However, claim 22 depends upon claim 21, which cites that the sweep gas is inert. Steam is not an inert gas. For examination purpose the examiner interpreted claim 22 to depend upon claim 20.

### ***Allowable Subject Matter***

9. Claims 1-7, 18, 20, 21, and 23-32 are allowed.
10. Claim 22 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
11. The following is a statement of reasons for the indication of allowable subject matter: the instant application is deemed to be an improvement over the invention of Sakai et al. (U.S.P. 5,958,091), Takahashi (U.S.P. 6,228,147), Edlund et al. (U.S.P. 6,221,117). The improvements comprise a reactor with a volume and a wall, a portal communicating between the reactor exterior and interior for a mixed gas flow, a reaction catalyst coating in contact with the interior side of the wall, a gas selective membrane within the reactor volume, and a passageway for removal of constituent gas from the interior of the reactor.

### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sakai et al. (U.S.P. 5,958,091), Takahashi (U.S.P. 6,228,147), Edlund et al. (U.S.P. 6,221,117), Autenrieth et al. (U.S.P. 6,231,831), Kosaka et al. (U.S.P. 5,614,001), Abe (U.S.P. 4,865,630), Verrill et al. (U.S.P. 5,938,800), Buxbaum (U.S.P.

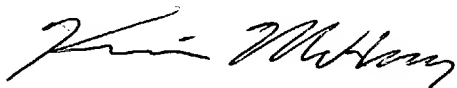
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6,461,408), Minet et al. (U.S.P. 4,981,676), Shirasaki et al. (U.S.P. 5,639,431), Gottzmann et al. (U.S.P. 6,139,810), and JP 06-345408 are cited of interest for illustrating the state of the art in gas purification systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin L. McHenry whose telephone number is (571) 272-1181. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G. Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin McHenry

KILEY S. STONER  
PRIMARY EXAMINER

*Kiley Stoner* 10/12/04